

ATOMIC ENERGY *newsletter*[®]

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

May 26, 1959
Vol. 21...No. 8

Negotiations for the purchase of a research and training nuclear reactor from American Machine & Foundry by the Italian Navy are now underway. The reactor would be installed near Leghorn at the Navy's Center for the Military Application of Nuclear Energy (CAMEN). It would be of the swimming pool type, operating on enriched uranium, and with 5 megawatt capacity. (Other CONTRACT NEWS, p. 3 this LETTER.)

Nucledyne Co., division of Cook Electric Co., Chicago, has recently appointed Charles Walsh Associates, Deerfield, Ill., as midwest sales representatives. Nucledyne manufactures water and graphite moderated subcritical assemblies, training reactors, and hot laboratory equipment. The Walsh firm has also been appointed by Landis & Gyr, Inc., New York, to handle sales of their SODECO impulse counters and by Controls for Radiation, Inc., Cambridge, Mass., to sell their film badge and bio-assay services. Territory covered by Charles Walsh Associates is the eight-state area of Minnesota, Iowa, Missouri, Kentucky, Michigan, Wisconsin, Illinois, and Indiana. (Other MANUFACTURERS' NEWS, p. 4 this LETTER.)

Regular production of thorium raw materials is now underway at the Elliott Lake thorium plant of Rio Tinto Dow, Ltd. The plant, which is operated as an adjunct to uranium refining operations, was built at a cost of about \$1 million. Operations are based on the use of solvent extraction for recovery of thorium from the waste liquors of the uranium milling operations of the Blind River area. Its first operating unit is adjacent the Quirke Mill of Algom Uranium Mines, Ltd.; if the market warrants, waste solutions from other mines in the area can be used as feedstock for additional plant units. (Other BUSINESS NEWS, p. 2 this LETTER.)

Course in Analyzing Hazards and Insurance Requirements of Atomic Energy Development Programs is scheduled for June 1-3, 1959 by American Management Association. Full details of the course may be obtained from the Association at 1515 Broadway, New York 36. (Other MEETINGS, COURSES, CONFERENCES, p. 5 this LETTER.)

New motion picture, "Production of Uranium Feed Materials", which covers processing of uranium ore concentrates into pure uranium, is now available from the USAEC's film libraries. Use of the film is restricted to nonprofit, noncommercial screenings. Information on obtaining prints may be obtained from the USAEC, Washington 25, D.C.

Uranium mine operators in the U.S. have been notified by the USAEC's Grand Junction, Colo., office that data on uranium ore reserves developed prior to Nov. 24, 1958 must be submitted to the Commission before Aug. 1, 1959 if they are to be considered in negotiations for uranium concentrate procurement for the 1962-1966 period. Several hundred mine operators in the U.S. were told in USAEC letter that the Commission is now negotiating contracts for procurement of uranium concentrate through the calendar year 1966. and that ore data submitted after July 31, 1959 would not be considered in such negotiations. (Other PRODUCT NEWS, p. 4 this LETTER.)

ATOMIC ENERGY BUSINESS & FINANCIAL NEWS...

HEAVY WATER PLANTS TO BE BUILT:-Plant for the production of heavy water, with capacity of 0.5-tons per year, is to be built by the W. German firm of Pintsch-Bamag, under contract given the firm by the W. German Ministry for Atomic Affairs. It will be built adjacent the 6-tons per year plant of Knapsack-Griesheim, subsidiary of Farbwerke Hoechst, near Frankfurt. If test facilities are successful, the Ministry plans a larger production unit. Ion-exchange process used will be one first used by I. G. Farben's Leuna plant, in E. Germany.

Heavy water plant is planned by Atomic Energy of Canada, Ltd., for its Chalk River, Ontario, installation. It is expected that this fractional distillation plant will be completed this Summer.

ORGANIZATIONAL CHANGE MADE IN HANDLING NUCLEAR WORK:-Separate department has been set up by Nuclear Division of The Martin Co., Baltimore, to handle work on the portable nuclear power plant PM-1 being built for the USAEC. (See CONTRACTS, this LETTER, re Martin's PM-1 job.)

LITHIUM PROCESSING OPERATIONS TO BE REDUCED:-Operations at the Bessemer City, N.C., processing plant of Lithium Corp. of America are being continued, but on a reduced basis, according to the company. With its USAEC contract expiring the end of this year, the company hopes to take up the slack with industrial sales. Meanwhile semicommercial production of n-butyl-lithium will begin June 1, 1959, and commercial output of other new products is expected before the end of the year.

URANIUM PROCESSING PLANTS NOW ALL PRIVATELY OWNED:-Last Federally-owned uranium processing mill--the USAEC's Monticello, Utah plant--will be closed down Jan. 1, 1960. It has been operated by National Lead Co. under a USAEC contract, and has a capacity of about 300 tons per day, which is the minimum economic operating rate. Ore deliveries in recent months have been averaging only about 100 tons per day, and a substantial part of the mill feed has been drawn from accumulated stock-piles.

Uranium processing mill with capacity of 492 tons per day will be built by Globe Mining Co., subsidiary of Union Carbide Corp., in the eastern Gas Hills area of Natrona County, Wyoming. Union Carbide is financing the mill, which will be operated through its division, Union Carbide Nuclear Co. Carbide holds contract running to Dec. 31, 1966 to sell USAEC uranium concentrates.

NUCLEAR POWER PLANT TO BE CONSTRUCTED:-Construction of a 50,000 kw nuclear power plant will start next Spring at Humboldt Bay, Calif., if Pacific Gas & Electric is granted permit by USAEC. PG&E's application was made after more than a year of engineering and cost studies confirmed its earlier estimates that nuclear power can compete economically with conventional power there. Startup is set for late in 1962, and PG&E predicts that by 1965 it will be generating 8 mill power.

INTEREST SHOWN:-More than 50 U. S. firms are interested in participating in the research and development projects for which \$100 million has been allocated under the U.S.-EURATOM program, according to the USAEC. Several companies have sent in letters of intent. EURATOM's Brussels headquarters have received R&D proposals from more than a dozen companies in the six European countries comprising the EURATOM group. (These R&D proposals are separate from the proposals which were invited recently for the construction of nuclear power plants: this LETTER, April 28, 1959, pge. 3.) (However, the Joint Congressional Committee on Atomic Energy has cut in half the \$14 million appropriation which the USAEC had asked for 1960 fiscal year for this program. Reason is that EURATOM has been slow in providing its share of these funds. If the program rate of development is accelerated, the Joint Committee said, additional amounts could be requested by the USAEC next year.)

STOCK OFFERING TO BE MADE:-Teleflex, Ltd., 461 King St., Toronto, Canada, has filed for SEC registration of 75,000 shares of stock. Shares will be offered for public sale by underwriting group headed by Drexel & Co. The company, through three U. S. subsidiaries, manufactures mechanical remote controls, control mechanisms, and linkages for use in nuclear reactors, and for other industrial purposes.

EARNINGS BETTER FOR INSTRUMENT MANUFACTURER:-Beckman Instruments, Inc., had largest shipments in April, 1959, in the company's history, according to Arnold O. Beckman, president. May and June would be even better he said. In the 9-months ended Mar. 31, 1959 net income of this manufacturer of nuclear and other measurement instruments was \$1,432,884 or \$1.06 a share compared with a loss of \$435,529 in the 1958 period.

ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED:- Contracts totaling about \$500,000 have been received by Tracerlab, Inc., from both civilian and military sources during the last month, according to S.S. Auchincloss, president. Included among the contracts are the development of a miniaturized radioactivity detection system for use in nuclear submarines; advanced research in the application of a specialized type of radiation known as Rayleigh scattering; and other work. Contracts are with USAEC in Germantown and New York, Bureau of Ships, Diamond Ordnance Fuze Laboratory, etc.

Vitro Engineering Co., division of Vitro Corp. of America, New York, has received USAEC contract to design a \$3 million high-level radiation laboratory at Oak Ridge National Laboratory, Tenn. The facility, which will be used to provide experimental data for the development of new reactor fuels, will include approximately 13 remotely operated hot cells for experimental work with plutonium and other toxic materials. Maintenance, service areas, laboratories, and offices are included in the facility.

Eldorado Mining & Refining, Ltd., uranium buying agency of the Canadian government, has awarded additional uranium purchase contracts to Algom Uranium Mines, Ltd., and Pronto Uranium Mines, Ltd. Algom's existing contract would have been completed about September, 1961, and Pronto's by December, 1960. The newly approved additions, which have been under negotiation for some time, will allow these companies to produce at their current rates until March 31, 1962. In the case of Algom, this will mean delivery by that company of approximately 2.5 million additional lbs. of uranium oxide valued at \$20 million. Pronto will deliver an additional 1.5 million lbs. valued at \$12 million. Price per pound in both cases is \$8. (U.S.). At present rates of amortization, plants of both companies will be fully written off over the life of the original contracts and before the \$8 price goes into effect. (It is understood that these additional sales to Eldorado are on behalf of the USAEC. In both cases the contracts covering the additions give Eldorado options on output of the mines up to Dec. 31, 1966.)

The Martin Co., Baltimore, has received cost-plus-fixed-fee contract from the USAEC to develop, construct and test operate a factory assembled, modular nuclear power plant. Martin's proposal was most acceptable to the Commission from among nine proposals it received after its invitation of last October. The plant (PM-1) is to be built for the Air Force and installed at Sundance, Wyoming. Funds for the nuclear portion of the plant will come from the USAEC; the Air Force will pay for the related generating equipment and other facilities at the site. Estimated cost of the contract is \$5,387,450. A pressurized water reactor will be used, cooled and moderated by light water; fuel will be enriched uranium. (Design of the plant provides for factory-assembled modules which can be air-transported to a remote site and rapidly assembled, or disassembled and relocated after operation. It will produce 1000 kw of electricity and 2000 kw of heat for interior of buildings, etc.)

Firm contract of cost-plus-fixed-fee type has been awarded by the USAEC to Kaiser Engineers division of Henry J. Kaiser Co., Oakland, Calif. for construction of the New Production Reactor (NPR) at Hanford Works, Richland, Wash. Negotiations had been underway with Kaiser for some time (this LETTER, Apr. 28, 1959, page 1). Kaiser's contract covers about \$100 million of the \$145 million total cost of the job. Preliminary construction will start this Summer; heavy construction will begin in the Summer of 1960. (NPR will be a graphite-moderated reactor for the production of plutonium. It will be unique among the plutonium production reactors at Hanford in that it will have features permitting the addition of electric power generating equipment--if desired--at a later date. General Electric Co., which operates Hanford Works, is doing reactor design engineering, while Burns & Roe, New York, are handling the architect-engineering work.)

Controls for Radiation, Inc., Cambridge 40, Mass., has received contract from Westinghouse Electric Corp.'s Bettis atomic power division to do analyses for different radioactive isotopes on samples of reactor coolants. The analyses involve measurement and identification of radioactivity formed in the reactor heat-transfer medium.

BIDS ASKED:- USAEC's operations office at Albuquerque, N.M., is inviting bids on six construction jobs at Commission installations in Albuquerque and Nevada. Largest contract is for project at Tonopah Ballistics Range; estimated cost is between \$750,000 and \$900,000.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS & PROCESSORS:- Glass fiber filter, with suggested applications in sampling studies of radioactive fallout, is said to give 99.98% absolute retention of aerosols of 0.25 micron in diameter. For filtration of particles of 0.05 micron and smaller, a slight drop in efficiency is said to occur. --Gelman Instrument Co., Box 68, Chelsea, Michigan.

Three carbon-14 labeled pentanes are now available from this processor: n-Pentane-1-C-14; n-Pentane-2-C-14; and n-Pentane-3-C-14. Also offered is N-Acetyl-1-C-14 and beta-Alanine-1-C-14.--Research Specialties Co., 200 So. Garrard Blvd., Richmond, Calif.

New ultra high-speed scaler, designed for use with Geiger, scintillation and proportional detectors, features both preset time and preset count. It also offers one microsecond resolving time, front panel discriminator, precision electronic timer, and choice of either 5000 or 2500 volt stable high voltage power supply.--Tracerlab, Inc., Waltham 54, Mass.

PRODUCT NEWS:- Price of tritiated thymidine will be reduced about 1/3 by Schwarz Laboratories, Inc., Mt. Vernon, N.Y., the first U.S. commercial manufacturer of this radioactive biochemical tracer. Schwarz has sold the biochemical to research institutes in 54 countries throughout the world, as well as in the U.S., where it finds such uses as investigating cell formation and turnover, genetic patterns, effect of intra-cellular radiation and growth inhibition in neoplasms.

Authorization will be asked by the USAEC of Congress to build a 15 billion electron volt linear accelerator which eventually may operate at 45 Bev. To cost an estimated \$115 million, the accelerator would be constructed near the campus of Stanford University, and would be enclosed in two parallel tunnels, each nearly two miles long and covered by 33 feet of earth. The USAEC would pay for the entire project, including the annual operating costs estimated at \$15 million; Stanford would operate the machine. Construction would take about six years.

New nickel-base alloy, developed at Oak Ridge National Laboratories as a container material for molten fluoride salts, is now being produced on a developmental basis by Haynes Stellite Co., division of Union Carbide Corp. Trade-named Hastelloy alloy N, the material is said to have good oxidation resistance, resist aging and embrittlement, permit fabrication readily, and show excellent resistance to hot fluoride salts.

Agreements have been signed by the U.S., U.K. and U.S.S.R., with International Atomic Energy Agency, which formalize their previous offers to supply fissionable materials to that organization. The U.S. will charge IAEA the lowest current USAEC domestic selling price; U.S.S.R. prices will be based on "lowest world prices" at time for delivery; and U.K. prices will be "not less" than other foreign customers pay for British fissionable material. (The U.S. has pledged 5,000 kg of uranium-235 to IAEA. It will also give free to IAEA \$50,000 worth of such materials annually for research or medical purposes.)

A portable pre-packaged nuclear power plant capable of generating 1,000 kw of electricity and 7,000 B.T.U.'s of heat per hour is being offered for sale by the Nuclear Products Branch of Lockheed Aircraft Corp. A full-scale mock-up which cost Lockheed \$100,000 has been set up at the company's Marietta, Ga., plant. Designed for palletized crating, the nuclear plant could be loaded aboard sixteen of Lockheed's C-130's; this would be an airlift of approximately 960 gross tons, according to Lockheed engineers. (Now working with Lockheed in nuclear power plant design and operation are Stearns-Roger Manufacturing Co., Denver, Colo., and the American Hydrotherm Co., New York. With extensive nuclear experience at Oak Ridge, Sandia, Hanford, etc., the firms will work as sub-contractors to Lockheed's Nuclear Products Branch.)

The Armed Forces Special Weapons Project, the U.S. military agency handling fission and fusion weapons, has been redesignated by the Defense Department as the Defense Atomic Support Agency. It will be responsible to the Secretary of Defense through the Joint Chiefs of Staff.

MANUFACTURERS' LITERATURE:- Four page brochure describes nuclear gauging systems and their use in continuous process operations for quality control; it may be obtained from Radiation Counter Laboratories, Skokie, Ill.....New England Nuclear Corp.'s 1959 radiochemical catalog and price list shows over 55 additions the company has made to its list of stock carbon-14 and tritium labeled compounds. Catalog is available on request to the company at 575 Albany St., Boston 18, Mass.

ATOMIC ENERGY PATENT DIGEST...latest grants...

ISSUED May 5, 1959 to PRIVATE ORGANIZATIONS:- (1) Method of producing hafnium-free "crystal-bar" zirconium from a crude source of zirconium. I. E. Newnham, N. Balwyn, Victoria, Australia, inventors. No. 2,885,281 assigned to Mallory-Sharon Metals Corp. (2) Gas target, R. J. Van de Graaff, inventor. No. 2,885,584 assigned to High Voltage Engineering Corp., Cambridge, Mass. (3) System for recovering uranium from its ores. J. C. Karcher, F. J. Allen, inventors. No. 2,885,270 assigned to Concho Petroleum Co., Dallas, Tex. (4) Recovery of uranium from dilute uranium-containing solutions. G. W. Bain, inventor. No. 2,885,258 assigned to the Trustees of Amherst College, Amherst, Mass.

ISSUED May 5, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Process for recovery of constituents of ores. R. F. McCullough, inventor. No. 2,885,259 assigned to USAEC. (2) Method for decontamination of reactor solutions. W. J. Maraman, H. R. Baxman, R. D. Baker, inventors. No. 2,885,260 assigned to USAEC. (3) Method of forming elongated compacts. H. F. Larson, inventor. No. 2,885,287 assigned to USAEC. (4) Plutonium-aluminum alloys. F. W. Shonfeld, inventor. No. 2,885,283 assigned to USAEC. (5) Method for electro-nickel plating wolfram carbide. No. 2,885,329 assigned to USAEC. (6) Nuclear reactor fuel element. R. V. Moore, G. Packman, inventors. No. 2,885,335 assigned to USAEC. (7) Low-level direct current amplifier. Q. A. Kerns, inventor. No. 2,885,496 assigned to USAEC. (8) Drift compensated direct coupled amplifier. A. A. Windsor, inventor. No. 2,885,497 assigned to USAEC. (9) Particle beam tracking circuit. O. A. Anderson, inventor. No. 2,885,552 assigned to USAEC.

ISSUED May 12, 1959 to PRIVATE ORGANIZATIONS:- (1) Dosimeter for detecting and evaluating ionizing radiation. H. T. Dybvig, J. E. Duffy, inventors. No. 2,886,711 assigned to General Aniline & Film Corp., New York, N.Y. (2) Geiger counter systems. R. E. Fearon, inventor. No. 2,886,713 assigned to Electro Chemical Laboratories Corp., Tulsa, Okla. (3) Process and apparatus for determining uniformity. P. R. Ewald, inventor. No. 2,886,714 assigned to The University of Tennessee Research Corp., Knoxville, Tenn. (4) Target for converting X-radiation into an electrical signal by means of photo-conductivity. H. Berger, J. E. Jacobs, inventors. No. 2,886,726 assigned to General Electric Co.

ISSUED May 12, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Shaft seal. J. A. McInery, inventor. No. 2,886,353 assigned to USAEC. (2) Recovery of plutonium and neptunium from aqueous solutions. G. T. Seaborg, R. C. Thompson, F. W. Albaugh, inventors. No. 2,886,406 assigned to USAEC. (3) Treatment of plutonium solution. G. E. Moore, inventor. No. 2,886,407 assigned to USAEC. (4) Enhancing precipitations with fluorine-containing reagents. G. W. Stahl, inventor. No. 2,886,408 assigned to USAEC. (5) Process for recovering and purifying uranium. T. D. Price, A. V. Hendrickson, inventors. No. 2,886,409 assigned to USAEC. (6) Non-aqueous dissolution of massive plutonium. J. G. Reavis, J. A. Leary, inventors. No. 2,886,410 assigned to USAEC. (7) Method for the reduction of uranium compounds. W. H. Cooke, J. W. Croom, inventors. No. 2,886,429 assigned to USAEC. (8) Uranium compositions. N. P. Allen, J. D. Grogan, inventors. No. 2,886,430 assigned to USAEC.

MEETINGS, COURSES, CONFERENCES...

Congress on Nuclear Energy, scheduled for June 15-20, in Rome, Italy, is under sponsorship of National Committee for Nuclear Research. It is scheduled in connection with Sixth International Exhibition on Electronics & Atomic Energy being held in Rome June 15-July 5. Further information from: E. Benvenuti, Via della Scrofa 14, Rome.

Second Nuclear Instrumentation Symposium will be held June 24-26, Idaho Falls, Idaho. Program and information from: H. S. Kindler, Instrument Society of America, 313 Sixth Ave., Pittsburgh 22, Pa.

Industrial Nuclear Technology Conference is planned for Sept. 22-24, Chicago, Ill. Sponsors are Armour Research Foundation of Illinois Institute of Technology; Nucleonics magazine; and USAEC. Information may be obtained from Armour Research at 10 West 35th St., Chicago 16, Ill.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

May 26, 1959